

Appln. No. 10/655,894  
Amendment dated December 20, 2004  
Reply to Office Action of September 21, 2004

**Amendments to the Drawings:**

The attached annotated sheet showing changes includes amendments to Fig. 5 as requested by the Examiner in the September 21, 2004 Office Action. Also enclosed is a replacement sheet for Fig. 5.

Attachment: Annotated Sheet Showing Changes to Fig. 5

Replacement Sheet for Fig. 5

**REMARKS/ARGUMENTS**

Reconsideration of the present application, as amended, is respectfully requested.

The September 21, 2004 Office Action and the Examiner's comments have been carefully considered. In response, the drawings, specification and claims are amended, and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

**DRAWINGS**

In the Office Action the drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the Examiner contends that the reference character "36" has been used to designate both the holding member and the receiving member. In response, page 12 of the specification is amended to eliminate the reference to reference character "36" at lines 5 and 8.

In view of the amendment of the specification, reconsideration and withdrawal of the objection to the drawings are respectfully requested.

### SPECIFICATION

In the Office Action the disclosure is objected to because of certain informalities. Specifically, the Examiner states that there appears to be an inaccuracy at page 13, line 5 which refers to Fig. 5. In response, page 13 of the disclosure is amended and amendments are made to Fig. 5 such that the written description clearly conforms to that which is shown in the drawings.

In view of the amendment of the disclosure and drawings, reconsideration and withdrawal of the objection to the disclosure are respectfully requested.

### CLAIM OBJECTIONS

In the Office Action claims 1-18 are objected to because of certain informalities. Specifically, the Examiner refers to claim 1 as including the unclear phrase "toward moving away." In response, claim 1 is amended to clarify this phraseology.

The Examiner also specifically refers to claim 5 which includes the phrase "the end face" which the Examiner contends has no antecedent basis in the claims. In response, claim 5 is amended to provide proper antecedent basis for this phrase.

Claim 3 is objected to under 37 CFR 1.78(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, the Examiner contends

that claim 3 functionally recites how the Applicant intends the structure to be made, as opposed to defining further structure in the claim. In response, claim 3 is amended to more clearly comply with 37 CFR 1.75(c).

In view of the amendment of the claims, reconsideration and withdrawal of the objection to the claims are respectfully requested.

FORM PTO-892

It is respectfully pointed out to the Examiner that on the Form PTO-892 attached to the September 21, 2004 Office Action that USP 4,552,064 (Sanders, Jr. et al.) was not identified thereon, but that this reference was applied by the Examiner in items #10-#12 on pages 7-9 of the Office Action in rejecting claims 10-14 and 18. It is respectfully requested that the Examiner issue another form PTO-892 with the next Patent Office communication such that USP 4,552,064 is made of record in this application.

PRIOR ART REJECTIONS

In the Office Action claims 1-4 are rejected under 35 USC 102(b) as being anticipated by JP 3-39256 (Iinuma). Claims 1 and 5 are rejected under 35 USC 102(b) as being anticipated by JP 3-

288660 (Sato et al.). Claim 9 is rejected under 35 USC 103 as being unpatentable over Iinuma, and further in view of JP 6-227000 (Ito et al.). Claims 10-13 are rejected under 35 USC 103 as being unpatentable over Iinuma in view of USP 4,552,064 (Sanders, Jr. et al.). Claim 14 is rejected under 35 USC 103 as being unpatentable over Sato et al. in view of Sanders, Jr. et al. Claim 18 is rejected under 35 USC 103 as being unpatentable over Iinuma in view of Ito et al., and further in view of Sanders, Jr. et al.

The present claimed invention as defined by independent claim 1 is directed to a wire dot printer head including a plurality of cores (27) each wound with a coil (29), and a plurality of armatures (4) each having an arm (9) supporting a printing wire (10) and rockably mounted in a position opposite to the plurality of cores. Each of the plurality of armatures has a thickness and a corresponding arm has a thickness which is less than the thickness of the corresponding armature. The wire dot printer head also includes a plurality of receiving members (36) each formed in the shape of a plate and mounted on the end face of the core side of the arm, and a plurality of pressing members (15) each being in contact with the plurality of receiving members and pressing the armatures in a direction away from the cores.

In rejecting claim 1 the Examiner relies upon JP 3-39256 (Iinuma) and JP 3-288660 (Sato et al.) as anticipating the claimed invention as defined by claim 1.

In order to achieve an increase in printing speed, the inventors have recognized that a reduction of armature weight is desired. Preferably the armature arm is formed as thin as possible, about 0.20 mm for example, for the purpose of decreasing the moment of inertia caused by the rocking of the armature. However, as a result of the reduction in thickness, the armature arm can break easily and has low durability. With low durability, the armature is liable to fail at an early time, which results in a shortened life of the wire dot printer head. In order to solve this problem, the present invention includes a plurality of receiving members each formed in the shape of a plate. Each receiving member is mounted on the end face on the core side of the arm of the armature. The receiving members are in constant contact with a pressing member for pressing the armatures in a direction away from the cores. Thus, the pressing member can be restrained from impairing the arm of the armature, thereby preventing the arm from fracturing even though a thin arm of the armature for increased speed is used. Consequently, the useful life of the wire dot printer head can be prolonged while maintaining a relatively high speed of operation.

The cited references fail to disclose, teach or suggest the above described structure of the present invention.

Iinuma discloses a receiving member 12a in the shape of a plate which is mounted on a core side of an arm 2. The receiving member 12a is, however, defined as the plate (receiving member 12a) having approximately the same width as the armature. Thus, Iinuma does not disclose the receiving member or armature arms of the present claimed invention.

Sato et al. disclose receiving members 201. However, the receiving members 201 are attached to pressing members 104. Therefore, areas of armature arms which are in contact with the receiving members 201 are subject to gradual abrasion by the pressing power of the pressing members 104 which leads to rapid deterioration and component failure. Sato et al., therefore, do not disclose, teach or suggest the present claimed invention as defined by claim 1 and do not address the aforementioned problem which the present claimed invention solves.

That is, the present claimed invention as defined by claim 1 is patentable over Iinuma and Sato et al. under 35 USC 102 as well as 35 USC 103 because the references do not disclose, teach or suggest a wire dot printer head including:

a plurality of armatures each having an arm supporting a printing wire, and rockably mounted in a position opposite to the plural cores, each of the plurality of armatures

having a thickness and a corresponding arm having a thickness, the thickness of the arm being less than the thickness of a corresponding one of the plurality of armatures; and/or

a plurality of receiving members each formed in a shape of a plate, and each mounted on the end face of the core side of the arm; and/or

a plurality of pressing members each being in contact with the plurality of receiving members and pressing the armatures in a direction away from the cores (see claim 1, lines 4-15).

None of the other references of record close the gap between the present claimed invention as defined by claim 1 and Iinuma and Sato et al. Therefore, claim 1 is patentable over all of the references of record under 35 USC 102 as well as 35 USC 103.

\* \* \* \* \*

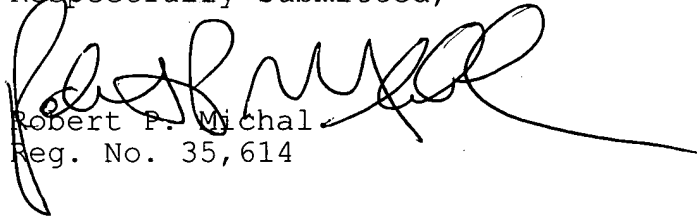
Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.



If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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Encl.: Annotated Sheet Showing Changes to Fig. 5  
Replacement Sheet for Fig. 5



Annotated Sheet  
Showing changes  
USPN 10/655,894  
Reply to Office Action  
dated Sept 21, 2004

Fig. 5

